Having thus described the preferred embodiment, the invention is now claimed to be:

1. A mat comprising:

an array of individual, air filled bladders **(16)**;

a means **(20)** responsive to body heat for adjusting contact pressure individually in the bladders, the heat responsive means including:

a heat sensor and vent structure **(20)** mounted on an exposed surface of each bladder.

~~2. The mat as set forth in claim 1, wherein the individual bladders (16) are air filled and the body heat responsive means (20) adjusts air pressure in the individual bladders.~~

~~3. The mat as set forth in claim 2, wherein the heat responsive means includes a heat sensor and vent structure (20) mounted on an exposed surface of each bladder.~~

2~~4~~. The mat as set forth in claim 1~~3~~, wherein the sensor vent structure **(20)** includes a confined polymer **(28)** which expands under body heat, expansion and contraction of the polymer controlling a vent valve **(26)**.

3~~5~~. The apparatus as set forth in claim 2~~4~~, wherein the vent valve includes a vent orifice that passes a lower air flow in a closed state and a higher air flow in an open state.

4~~6~~. The mat as set forth in claim 2~~4~~, wherein the sensor vent structure **(20)** includes a plurality of flexible, sealed channels **(28)**, each channel containing the polymer, the channels deforming as the polymer heats and expands to urge the vent valve **(26)** open.

5~~7~~. The mat as set forth in claim 4~~6~~, wherein as the polymer expands, the channels create tensile forces that expand in one dimension and contract in another.

6~~8~~. The mat as set forth in claim 4~~6~~, wherein the channels are curved tubular arrays which generate tensile stresses **(30)** in a direction which urges the vent valve **(26)** to open.

7~~9~~. The mat as set forth in claim 2~~4~~, wherein the polymer undergoes a phase change between 20-35°C.

8~~10~~. The mat as set forth in claim 7~~9~~, wherein the phase change is a solid/liquid phase change, the polymer having minimal volume change with temperature in the solid state and the liquid state and undergoing significant volume change with the change in phase between the solid and liquid states.

9~~11~~. The mat as set forth in claim 7~~9~~, wherein the polymer has as sufficient heat capacity that the polymer changes from the solid phase to the liquid phase at a higher temperature than the polymer changes from the liquid phase back to the solid phase.

10~~12~~. The mat as set forth in claim 1~~3~~, further including an air supply **(10, 12)**, which supplies air to the individual bladders **(16)**.

11~~13~~. The mat as set forth in claim 10~~12~~, wherein the individual bladders **(16)**, air supply lines **(12)**, and metering orifices **(14)** between the air supply lines and each bladder are formed of a thin flexible elastomeric material.

12~~14~~. The mat as set forth in claim 10~~12~~, further including:

a layer of an air permeable, compressible material which overlays the sensor/vent constructions to help distribute air from the vents around contacting body portions.

13~~15~~. The mat as set forth in claim 10~~12~~, further including an overlaying layer of a compressible material whose heat transfer characteristics increase under compression and decrease under expansion.

14~~16~~. The mat as set forth in claim 13, wherein the mat is incorporated into one of a mattress, a wheelchair seat, an airplane seat, and seating furniture.

15~~17~~. A method of supporting a subject while reducing a potential for pressure ulcers, the method comprising:

supporting the subject on a plurality of air bladders **(16)**;

pressurizing each of the air bladders;

sensing a temperature at a potential contact point on each bladder; and,

responsive to the sensed temperature, adjusting a pressure in each bladder, including venting the bladders, the venting providing an air flow from the bladders along an undersigned of the subject to reduce pooled moisture.

~~18. The method as set forth in claim 17, wherein the step of adjusting the pressure in each bladder includes venting the bladders, the venting providing an air flow from the bladders along an underside of the subject to reduce pooled moisture.~~

16~~19~~. The method according to claim 15~~18~~, wherein the sensing step includes:

a polymer expanding as it is heated toward a subject temperature and contracting as it is cooled toward an air temperature in the bladders.

17~~20~~. The method as set forth in claim 16~~19~~, wherein the polymer undergoes a phase change between the air supply temperature and the body temperature.

18~~21~~. The method as set forth in claim 16~~19~~, wherein the polymer undergoes a phase change between 20-35°C.

19~~22~~. The method as set forth in claim 16~~19~~, wherein the venting step includes:

biasing a normally closed vent valve **(26)** open with the polymer as the polymer expands.

20~~23~~. The method as set forth in claim 16~~19~~, wherein the venting step includes:

biasing a vent valve **(26)** from a state in which it passes a lower air flow to a state in which it passes a higher air flow as the polymer expands.

21~~24~~. The method as set forth in claim 19~~22~~, wherein as the polymer expands and vents the bladder, the bladder collapses and pulls away from the subject;

as the bladder pulls away from the subject, it is cooled by the cooling air and the polymer contracts closing the vent valve **(26)**; and,

as the vent closes, the bladder re-inflates and expands.

22~~25~~. The method as set forth in claim 21~~24~~, wherein the polymer has a sufficient heat capacity that the cell over-deflates before the vent valve **(26)** closes and

over-inflates before the vent valve opens to create a massaging action.

23~~26~~. The method as set forth in claim 21~~24~~, further including:

overlaying the polymer layer with a material whose heat transfer characteristics improve with compression and diminish with expansion.